

Newsletter



WESTERN MICHIGAN UNIVERSITY
College of Arts and Sciences
Department of Physics

A Newsletter for Friends of the Western Michigan University Department of Physics

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Physics Major drafted by Detroit Tigers

Kevan Hess is a Kalamazoo native, born on March 30, 1988. While studying at Western he has pursued his Bachelor's in Physics with a minor in mathematics. Hess was a three-year letter winner during his time with the WMU baseball team and was drafted in the 14th round by the Detroit Tigers in 2009. Hess was featured in the Kalamazoo Gazette in September of 2010.



Kevan Hess of Kalamazoo, MI

"Ever since I was a kid, there have been two things that have always intrigued me: sports and science. Learning how things work has driven me through school and through my sporting career. Once I took my first physics class in high school, I knew that was what I wanted to study. Physics explains how our Universe works and it is a field with a large frontier ahead of it.

After three years studying at Western, I was fortunate enough to continue my baseball career professionally with the Detroit Tigers. Since being drafted, I have continued to come back and take classes in the offseason to pursue my degree in physics."

- Kevan Hess

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KEVAN HESS

HT 6'2" WT 190 BORN 3.30.88
BATS R THROWS R

2009 TOTALS					
TEAM	W	L	IP	SO	ERA
ONEONTA (A)	2	0	44.0	35	4.30

Getting drafted by Detroit was extra special for Hess, a native of Kalamazoo, Mich., who played collegiately at Western Michigan. The fact that his older brother, Andrew, is also in the Tigers organization adds icing to the cake.

The attached autograph is guaranteed by Panini America, Inc.

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2005-Present:

Year	Team	League	W	L	ERA	G	GS	CG	SHO	SV	IP	H	R	ER	HR	BB	SO	GO/AO	AVG
2009	ONE	NYP	2	0	4.30	20	1	0	0	0	44.0	50	21	21	0	19	35	1.35	.278
2009	Minors		2	0	4.30	20	1	0	0	0	44.0	50	21	21	0	19	35	1.35	.278
2010	CT	NYP	2	0	2.87	12	0	0	0	1	15.2	16	7	5	1	5	16	0.87	.276
2010	WM	MID	0	1	8.00	10	0	0	0	1	18.0	17	17	16	1	17	15	1.00	.243
2010	Minors		2	1	5.61	22	0	0	0	2	33.2	33	24	21	2	22	31	0.94	.258
2011	CT	NYP	1	0	0.00	4	0	0	0	1	6.0	2	0	0	0	4	4	2.50	.105
2011	WM	MID	1	1	7.85	11	0	0	0	0	18.1	19	16	16	0	13	11	1.11	.275
2011	LAK	FSL	0	0	3.00	3	0	0	0	0	6.0	5	2	2	1	5	4	0.57	.250
2011	Minors		2	1	5.34	18	0	0	0	1	30.1	26	18	18	1	22	19	1.17	.241

Stats from www.MiLB.com

Department Launches Blog

The department has opened a blog at: <http://wmuphysics.wordpress.com> as a forum for students, alumni, staff and faculty of the Department of Physics and beyond to comment on and discuss academics, life at and around the department, and the physical world. Other objectives of this blog include: 1) serving as a communication mechanism among all those associated with our department; and 2) providing our students with additional information and guidance that may help them succeed in their programs and plan for their future careers.

All members of our community are welcome to read the blog regularly, comment on posts, and contribute with their own posts. To submit new posts just email them to any of the blog caretakers:

Manuel Bautista, undergraduate advisor

manuel.bautista@wmich.edu

Michael Famiano, supervisor of the Physics Club

michael.famiano@wmich.edu

Kirk Korista, department chair

kirk.korista@wmich.edu

Professor and Graduate Student Advocate for Physics Research

On March 5, 2012, Dr. Michael Famiano and graduate student Ramón Barthelemy accompanied more than 30 physicists on a science advocacy trip to Washington D.C. The trip was an effort to stop the current budget cuts targeting Michigan State University's Facility for Rare Isotope Beams (FRIB), as well as to maintain support for fundamental nuclear physics research. The fledgling construction of FRIB recently suffered a \$28 million cut which will delay the project.

The team of physicists met with congressional representatives, senators and staffers to raise awareness about FRIB and urge them to provide the full funding initially pledged by the federal government. During the trip Famiano and Barthelemy met with several house and senate appropriations committee members, several senatorial and congressional staff members, and Congressman Fred Upton. The trip was considered a success and many senators and congress members pledged their support and offered their signatures on support letters prior to legislative approval of the recently released President's budget.

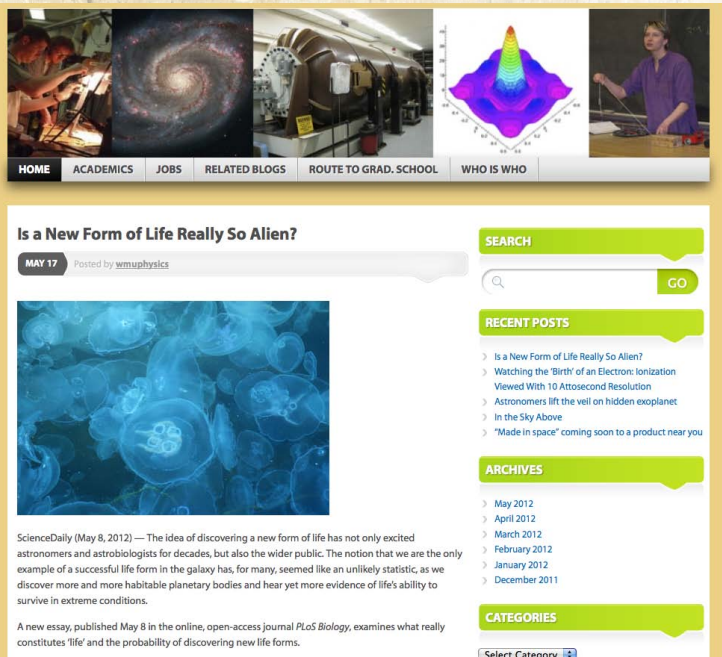


Image from the new physics blog



Dr. Michael Famiano (right) and Ramón Barthelemy (left) pictured with Congressman Fred Upton (center)

Staff News



Kirk Korista

Changing of the Guard

Meet the new chair of the Department, Kirk Korista

The new department chair is Kirk Korista. Korista joined the Department of Physics in August 1997 as its first Ph.D. astronomer. Korista's research interests lie in modeling the spectra of photoionized plasmas, especially that located near super-massive black holes found at the centers of massive galaxies, a class of objects known as Active Galactic Nuclei. After Paul Pancella nine years of service as the chair of the Department of Physics, Pancella rejoined the faculty in July 2011.



Dr. Rene Bilodeau, a research associate working in Dr. Nora Berrah's group, participated in the experiment carried out at the SOLEIL facility in France. His support (trip, housing...) was fully funded by SOLEIL.



Faculty News

Nora Berrah is on sabbatical leave during the 2011-12 academic year in Paris, France. She is working with several collaborators at the French synchrotron radiation facility SOLEIL, which is located near Paris (Plateau de Saclay), France.

Berrah received a "Triangle de la Physique" chair that encompasses University Paris VI, University d'Orsay and WMU to carry out research with impacts on either astrophysics or the structure of bio-molecules; specifically, she is carrying out photodetachment experiments on H^- with Drs. Catalin Miron (SOLEIL), Jean-Marc Bizau/Denis Cubaynes (ISMO) and Francis Penent (Paris VI, LCPMR).

The H^- negative ions are responsible for a large part of the opacity of stellar atmospheres, including our own sun, and are relevant for the physics



of interstellar clouds. These measurements must be carried out at low-photon energies not available at the Advanced Light Source where Berrah usually conducts her research. Berrah shipped her anions source to SOLEIL to carry out the measurements.

She also collaborated with Drs. Pascal Lablanquie, Francis Penent (Paris VI, LCPMR), and Dr. Alan Wuosmaa (WMU) on a different research topic that she pursues at the Stanford Free Electron Laser (FEL), creating double K-shell vacancies in various molecules.

The goal of this latter work is to determine a new methodology, either with FEL or synchrotrons, to establish the structure of complex molecules, such as bio-molecules, in ways not possible with present single K-shell experiments. The research work is funded by a U.S. Department of Energy Basic Energy Sciences grant via WMU, and support from the "Triangle de la Physique" funded by the French Ministry of Higher Education and Research.



Sung Chung received an honorable fellowship Invitation Fellowship Programs for Research in Japan from the Japan Society for the Promotion of Science, a Japanese government agency, to conduct research with Professor Norio Kawakami in the physics department of Kyoto University, Kyoto, Japan, from May 1 to June 29, 2012.

continued on page 4



Arthur McGurn has received an honorary position of visiting scholar in the Department of Physics and Astronomy at the University of California, Riverside, effective January 20, 2012, through May 31, 2012.

Charles Henderson was appointed as senior editor of the journal *Physical Review Special Topics — Physics Education Research*. This is the top international journal in the field of physics-education research, with an Impact Factor of 2.302. It is part of a series of 11 *Physical Review* journals run by the American Physical Society, which are among the most prestigious international journals for the publication of physics research.



John Tanis is on sabbatical leave during the 2011-12 academic year in Caen, France. He is working with colleague Amine Cassimi from the French lab on the transmission of slow- and medium-speed highly charged ions through capillaries of insulating tapered-glass of micrometer dimensions. This work is of interest from the fundamental point of view of understanding the interactions involved when the charged ions pass near the capillary walls. Such capillaries also are of interest because of their ability to produce very small beams that have several proposed applications in the fields of science, biology, and medicine. Several papers from this work are in progress. The work by Dr. Tanis is supported by a grant from the Basse-Normandie region.



Alumni News

Ileana Dumitriu has accepted a tenure-track assistant professor position at Hobart and William Smith Colleges.



Since 2010, Ileana has been a visiting assistant professor in the Physics Department at Gustavus Adolphus College, where she taught upper-level classes (mechanics and E&M); introductory classes

(general physics I and II); physics laboratories; and two J-Term courses (Romania, and physical world). Hobart and William Smith Colleges is a private, liberal arts institution founded in Geneva, N.Y. in 1822, and is situated in the heart of New York State's Finger Lakes Region. In the 2012 edition of *Best Colleges*, it is ranked number 64 as a national liberal arts college. Ileana starts her new position at HWS on July 1, 2012. In the fall semester, she will teach general physics I and electronics, both introductory physics classes. She will continue her research in atomic physics and also start building an on-campus research laboratory.



Lihua Wang has been working as a senior research associate at the Center for Superfunctional Materials, Department of Chemistry, Pohang, Korea, with Director Kwang-soo Kim, since October 2011.

Student News

Physics students assist professor in sabbatical

Asma Ayyad and Samantha Wickramarachchi went to Caen, France in May to participate in an experiment and help with analysis of the data during Dr. Tanis' sabbatical. The experiment involves the transmission of slow highly charged ions through insulating tapered-glass capillaries of micrometer dimensions. This work involves both the fundamental interactions of the ions with the capillary wall and also the applied aspects of producing micrometer-sized beams from the capillaries. The work by the students in Caen is supported by a grant from the Basse-Normandie region.

- Eli Garrett has been selected into the East Asia and Pacific Summer Institutes' Program for Japan, sponsored by the National Science Foundation's Office of International Science and Engineering.

Manjula Nandasiri awarded the Patricia L. Thompson Dissertation Award for spring 2012

The award is made possible through a gift from Dr. Donald Thompson, former vice president for research and dean of the WMU Graduate College. The awards are given to assist doctoral students with expenses associated with the dissertation process.

This edition of the newsletter was compiled and edited by Tom Gorczyca. Please feel free to e-mail me with your comments or questions: thomas.gorczyca@wmich.edu

Graduate student awarded the Chambliss Astronomy Award honorable mention

Ehab ElHoussieny, graduate student under the supervision of Dr. Manuel Bautista, received his award at the 219th meeting of the American Astronomical Society in Austin, Texas in January. The awards are given to recognize exemplary research by undergraduate and graduate students who present at a poster session at the meeting. Awardees are honored with a Chambliss medal or, in the case of honorable mention, a certificate. This was ElHoussieny's first presentation at a national scientific event. His work was one of only 25 posters selected from more than 300 competing posters and from among nearly 2,000 attendees.



From left to right are Ehab ElHoussieny, Professor of Physics Manuel Bautista, and Brandon Marshall.

ElHoussieny's work on "Time Dependent Photoionization of Gas Outflows in AGN" is a theoretical model explaining the structure and dynamics of a class of broad absorption line absorbers (BAL) in quasars. BALs are presumed to be the main feedback mechanism that determines the co-evolution of the supermassive black hole that powers the quasar and the host galaxy. The model that ElHoussieny is developing, following previous work of Bautista, incorporates the effects of time-dependent variations of the radiation continuum that heats and ionizes the absorbers. Such variations in the ionizing radiation, characteristic of quasars, are expected to produce supersonic thermal waves and non-equilibrium condition through the absorbers, which might induce much of the observed structure and dynamics.

Student Awards and Degrees

Student Awards

Fall 2011

Course	Student
1040	Henry Murray
1060	Mady Higinbotham
1070	Trevor Gick
1130	Marci Vasaris
1130	Ashley Corey
1130	Shirish Bade Shrestha
1150	Evan White
1800	Yadira Hernandez
1800	Emma Bolam
2050	Gregory Maxwell
2050	Rachel Perron
2070	Talal Almaghlouth
2070	Enrique Gamez
3090	Rebecca Keikhaefer

Spring 2012

Course	Student
1000	Geoffrey Campbell
1020	Barry DeYoung
1040	Bethel McGrew
1060	Peyton Irmen
1070	Danielle Brown
1130	Kevin Heinze
1150	Stacy Kramer
1800	Brooklynn Brown
1800	Toni Brew
1800	Stephanie Strong
2050	Jeffrey Timmer
2050	Rebecca Monterusso
2050	Roxana Manta-Bielanski
2070	Adnan Zafar
2070	Jonathan Larose
3090	Jacob Lefere

David Carley Memorial Award
Eiman Bokari

Haym Kruglak Graduate Student Teaching
Excellence Award

Laurentiu Dumitriu
Daniel McNeel
Gaetan VanGyseghem

Nathan Nichols Physics Scholarship

Steven Dye
Steven Nielsen

Leo R. Parpart Physics Scholarship

Samanthi Wickramarachchi

Presidential Scholar

Garret Marsh

Paul Rood Physics Scholarship

Garret Marsh

Charles J. Wilcox Memorial Award

Fall 2011 - Trevor Slayton
Spring 2012 - Garrett Marsh

George and Jean Bradley Fellowship
Award

Mohamed ElHoussieny

Tamer Elkafrawy has been inducted into Sigma Pi Sigma (the national physics honor society) and the Society of Physics Students.

Fall 2011 Degrees

Bachelor of Science

Trevor M. Slayton

Master of Arts

Betty A. Adams

Ph.D.

Mohammad Al Amar

The Department of Physics Roster

Faculty

Manuel Bautista
Nora Berrah
Clement Burns
Sung Chung
Michael Famiano
Thomas Gorczyca
Dean Halderson
Charles Henderson
Emanuel Kamber
Asghar Kayani
Kirk Korista
Arthur McGurn
Paul Pancella
Lisa Paulius
Alvin Rosenthal
David Schuster
John Tanis
Alan Wuosmaa
Max Wyman

Emeriti

Eugene Bernstein
Gerald Hardie
Dean Kaul
Robert Poel
Robert Shamu
Michitoshi Soga

Staff

Katie Easley
Benjamin Gaudio
Chris Hoffmann
Allan Kern
Lori Krum
Rick Welch

Graduate Students

Asma Ayyad (Israel)
Amila Bandara (Sri Lanka)
Ramon Barthelemy (Michigan)
Shadi Bedoor (Jordan)
Eiman Bokari (Saudi Arabia)
J. Fiore Carpino (Florida)
Priyanka Chakraborti (India)
Amila Dissanayake (Sri Lanka)
Laurentiu Dumitriu (Romania)
Ehab ElHoussieny (Egypt)
Mohamed ElHoussieny (Egypt)
Tamer Elkafrawy (Egypt)
Subramanian Ganapathy (India)
Xuan Gao (China)
Elias Garratt (Michigan)
Khalil Hamam (Jordan)
Justin Harris (Michigan)
Darshika Keerthisinghe (Sri Lanka)

Raina Khatri (Maryland)
Soroush Khosravi Dehaghi (Iran)
Nuwan Sisira Kumara (Sri Lanka)
Chengyang Li (China)
William Mamudi (Indonesia)
Scott Marley (Michigan)
Daniel McNeel (New Mexico)
Bryan Moore (Michigan)
Manjula Nandasiri (Sri Lanka)
Buddhi Rai (Nepal)
Trevor Stefanick (Michigan)
Rex Taibu (Malawi)
Sarah Towers (Michigan)
Gaetan VanGyseghem (Michigan)
Samanthi Wickramarachchi (Sri Lanka)
Jianqing Yang (China)

Post-doctoral Research Associates

René Bilodeau
Li Fang
Vanessa Fivet
Jonathan Lighthall
Brendan Murphy
Timur Osipov

Alumni Information Update

Please use this form to update our mailing list, and/or to let us know what you have been doing, and what you would like to see in future newsletters. Fill out any portion of the form below and return to: Editor, Department of Physics, 1903 W. Michigan Avenue, Kalamazoo, MI 49008-5252 or e-mail to: physics-department@wmich.edu.

Name _____

Home address _____

City _____ State _____ Zip _____

Home phone _____ Email _____

Employer _____ Job title _____

Work address _____

City _____ State _____ Zip _____

If alumni, degree and year: _____

Tell us more about yourself, and/or what you would like to see in future newsletters:

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